

LXVII.—H. Sauter's Formosan Collections: Culicidæ.
By F. W. EDWARDS.

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DURING the past summer I received for identification from Dr. Walther Horn (Berlin-Dahlem) a number of Formosan mosquitoes collected by Herr H. Sauter. The chief interest of the collection lay in two new species of *Megarhinus* (subgenus *Toxorhynchites*) which it contained, and which are described below. Since little has been recorded concerning the mosquitoes of Formosa, a list is given of the other species contained in the collection. Additional specimens collected by Herr Sauter were subsequently received from the Budapest Museum through Mr. F. V. Theobald; the records of these are included in the list, and are distinguished by an asterisk:—

Anopheles (*Anopheles*) *hyrcanus* (Pall.).—Toyen, Macuyama, Anping, *Takao. Range of variation considerable, but all of the typical Chinese form (rather light-coloured body, narrow tarsal rings, fringe-spot usually present, palpal rings moderately distinct).

Anopheles (*Myzomyia*) *subpictus*, Grassi.—*Takao.

Armigeres (*Armigeres*) *obturans* (Walk.).—Taihoku, Chosokei, Macuyama, *Tainan.

Armigeres (*Leicesteria*) *annulitarsis*, Leic.—Macuyama, Kankau.

Aedes (*Stegomyia*) *argenteus* (Poiret) (*S. fasciata*, F.).—Anping, *Takao.

Aedes (*Stegomyia*) *albopictus* (Skuse).—Macuyama, Hokuto, Taihoku.

Aedes (? *Skusea*) *amesi* (Ludl.).—*Takao, 1 ♀.

Aedes (*Ecculex*) *vexans* (Mg.).—*Takao, 1 ♂.

Teniorhynchus (*Mansonioides*) *uniformis*, Theo.—Taihoku, Hokuto, *Takao.

Lutzia concolor (Theo.).—Macuyama.

Culex mimeticus, Noé, var.—Macuyama. No basal arm to tenth sternites; last joint of male palpi with the tip rather more broadly pale than in the European form. Specimens of this variety are in the British Museum from Formosa (*Shiraki*), Hong Kong (*Macfarlane*), and India (*Howlett, Fletcher*).

Culex whitmorei (Giles).—Toyen district, Sanshikyaku.

Culex biteniorhynchus, Giles.—Macuyama, Daitotei, Chosokei, Sanshikyaku.

Culex sitiens, Wied.—*Takao.

Culex vishnui, Theo.—Taihoku, Daitotei.

Culex tritaniorhyuchus, Giles.—Macuyama, Daitotei, Sanshikyaku, *Takao.

Culex fatigans, Wied.—A large number.

Culex fuscocephalus, Theo.—Hokuto, Sanshikyaku.

Culex (Lophoceratomyia) rubithoracis, Leic.—Taihoku.

Rachionotomyia sp. (? *bambusa*, Yam.).—*Polisha.

Megarhinus manicatus, sp. n.

♀. *Head* clothed mostly with dark bronze-coloured scales; a silvery-white rim round the eyes. Proboscis and palpi with purple scales, the latter slender, reaching to the base of the fifth flagellar joint. Torus black, with white pollinosity. First flagellar joint without scales. *Thorax*: prothoracic lobes with greyish-silvery scales only. Proepimera for the most part silvery-scaled, but some purple scales on the upper part. Mesonotum rubbed, the remaining scales nearly all metallic green, except on the scutellum, where they are coppery golden. Pleuræ largely covered with silvery scales, with a slight golden tinge in some lights. *Abdomen* clothed with bluish-purple scales above; sides of the first tergite and small lateral basal patches on the succeeding tergites shining white. No lateral scale-tufts, but the eighth segment with rather long and dense terminal golden bristles. Venter mostly golden; sternites 4 and 7 almost entirely purple, the remaining sternites with a narrow median purple stripe. *Legs* purple-scaled; femora golden beneath almost to the tips; front and mid tibiæ with indications of a golden stripe on the outer or hinder side. All the tarsi with a broad creamy-white ring, which on the front and mid legs includes the tip of the second joint, the whole of the third and fourth, and the base of the fifth, but on the hind legs includes only the fourth joint and the extreme tip of the third; in addition, the first tarsal joint of the middle and hind legs has a distinct though rather narrow creamy-white ring; fifth tarsal joint on all legs mostly blackish. *Wings* with brownish membrane and a distinctly darker brown cloud over the cross-veins. Wing-scales small and thinly spread, wings therefore appearing almost bare. Longitudinal portion of the bent r-m cross-vein of the same length as the vertical portion; the m-cu cross-vein slightly external to the vertical portion of r-m. Stem of halteres orange; knob dark, clothed with golden scales. Wing-length 7.5 mm.

FORMOSA: Toa Tsui Kutsu, v. 1914 (*H. Sauter*).

Megarhinus aurifluus, sp. n.

♂. *Head*: scales mostly greenish; a paler rim round the eyes. Proboscis dark blue on the stout portion, more coppery on the slender portion. Palpi distinctly four-jointed, the first joint the shortest; fourth joint scarcely half as long again as the third; scales dark blue, a narrow creamy ring at the tip of the first joint and a second just before the tip of the second joint. Antennæ only moderately stout, the joints distinctly swollen in the middle; torus clothed with small white scales; second joint with a few dark green scales, less than twice as long as the third. *Thorax*: prothoracic lobes, proepimera, and sides of mesonotum with light metallic-green scales (middle of mesonotum rubbed). Pleuræ with light golden scales. *Abdomen* clothed above with metallic-green scales towards the base, the colour shading through blue to violet at the tip; a lateral pale golden stripe which broadens out somewhat in the middle of each segment, and on the fifth in one specimen forms an almost complete but narrow transverse band. Sixth segment laterally with some golden hairs on the basal half, apical half with dense black hair-like scales; seventh and eighth segments laterally with long, dense, golden, hair-like scales. Venter almost entirely blue, the fifth and sixth sternites with lateral golden patches, which are broadest on the posterior margin and do not quite reach the base. *Legs* dark blue; hind femora light golden towards the base, except dorsally; middle tibiæ more or less conspicuously golden on a considerable area a little beyond the middle, the same coloration being slightly indicated in the hind tibiæ of one specimen. Front tarsi with a white ring embracing the apical third of the first and the whole of the second joint; mid-tarsi with a white ring at the base of the first joint, the whole of joints 2-4 white; hind tarsi with one rather narrow whitish ring situated at the base of the second joint. *Wings* with most of the veins dark-bordered, especially those towards the costa; scales fairly conspicuous on costa, subcosta, and radial veins. Longitudinal portion of r-m quite twice as long as the vertical portion; m-cu variable in position. Wing-length 8-12 mm.

♀. Palpi slender, purple-scaled, reaching to base of fifth flagellar joint. First flagellar joint with a few golden scales towards the base. Yellowish transverse band on fifth abdominal tergite complete. Venter much rubbed, but evidently much more extensively yellow than in the male. Front legs with the femora pale golden posteriorly, the white ring embracing more than half of the first tarsal joint. Mid-legs

missing. Hind legs with the tibiæ conspicuously golden beneath beyond the middle; first tarsal joint pale golden beneath and at the sides on the basal third, second tarsal joint with a white ring as in the male. Wing-length 8 mm.

FORMOSA: Toa Tsui Kutsu, v. 1914, 1 ♀; Kankau, 1912, 2 ♂; and Toyenmongai, 1 ♂ (*H. Sauter*); also 1 ♂ without definite data. Co-types in the Berlin-Dahlem Museum, the Budapest Museum, and the British Museum.

This is apparently the species which Theobald described as *M. splendens*, Wied., in 1901. Although I have not seen the specimen on which this description is based, it is evident that the determination was erroneous, since Wiedemann states that the tufts of the seventh abdominal segment in his species are blackish. Through the kindness of Dr. H. Zerny, of the Vienna Museum, I have recently been able to examine Wiedemann's type ♂ of *M. splendens*. It proves to be identical with *M. regius* (Tennent), as might be supposed from the description.

LXVIII.—*The Cichlid Fishes of Lakes Albert Edward and Kivu.* By C. TATE REGAN, M.A., F.R.S.

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ONLY two or three species of Cichlidæ are known from Lake Albert, and these have also been found in the Bahr-el-Gebel. Lakes Albert Edward and Kivu appear to have a more interesting Cichlid fauna, each possessing a number of peculiar forms of *Haplochromis*, which appear to be more nearly related to species found in Lake Victoria than to those of the Nile.

Synopsis of the Genera.

I. Scales cycloid; pharyngeal apophysis formed by parasphenoid alone.
1. *Tilapia*.

II. Scales more or less distinctly ctenoid; pharyngeal apophysis formed by parasphenoid in middle and basioccipital at sides.

Teeth conical, or outer bicuspid and inner tricuspid. 2. *Haplochromis*.

An outer close-set series of enlarged teeth, with strongly incurved, flattened, rounded crowns,

followed by 2 series of minute tricuspid teeth. 3. *Schubotzia*.